

# KIC 005876368

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005876368-01	OBS	1049.01	0.525426	131.612368	233.1	0.924	31.1	43.1	0.80	5791	1.47	4338.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005876368-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

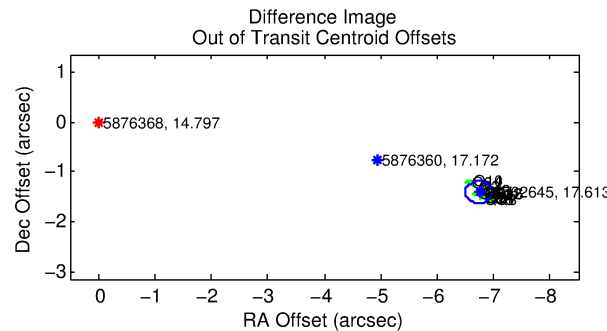
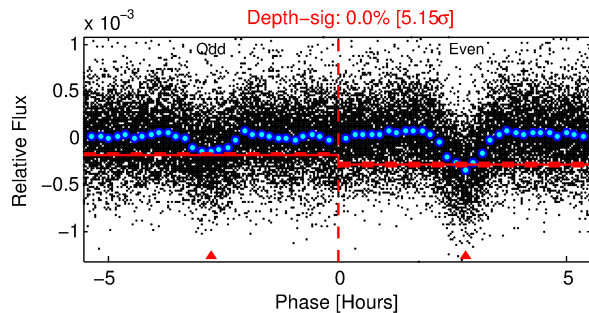
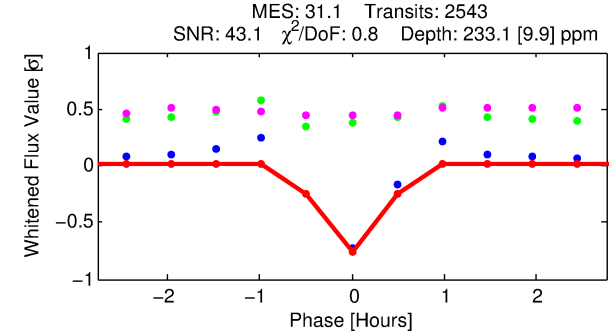
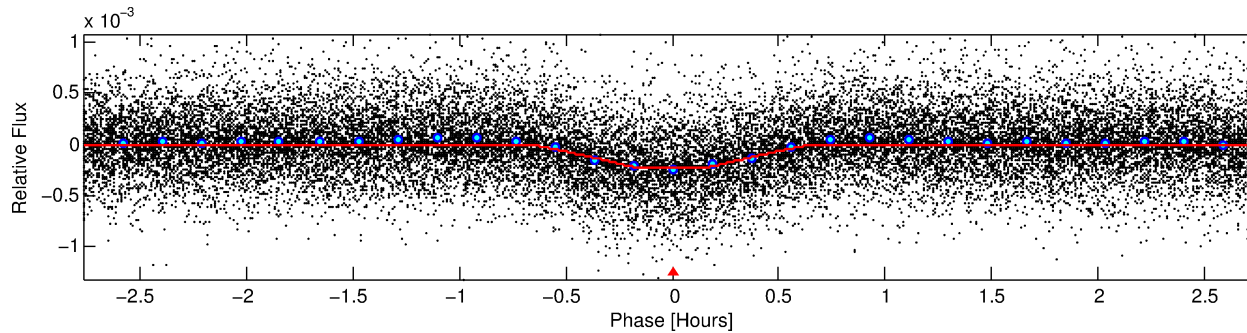
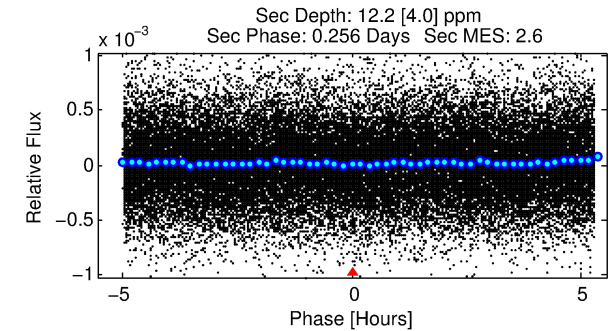
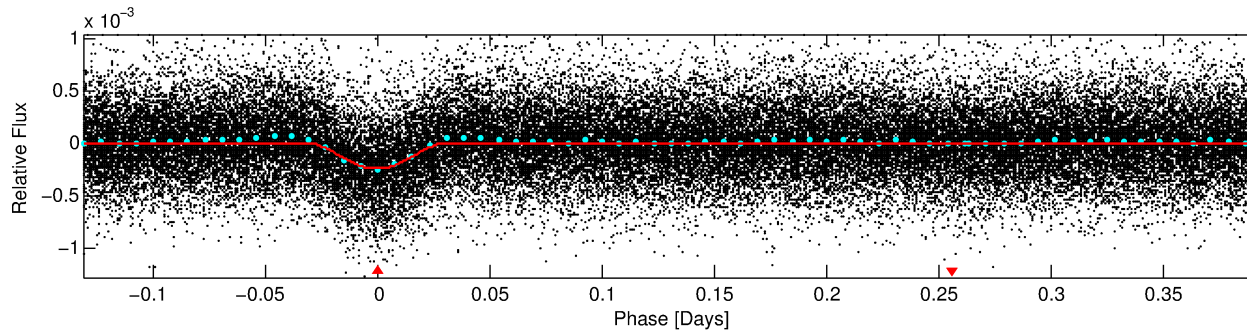
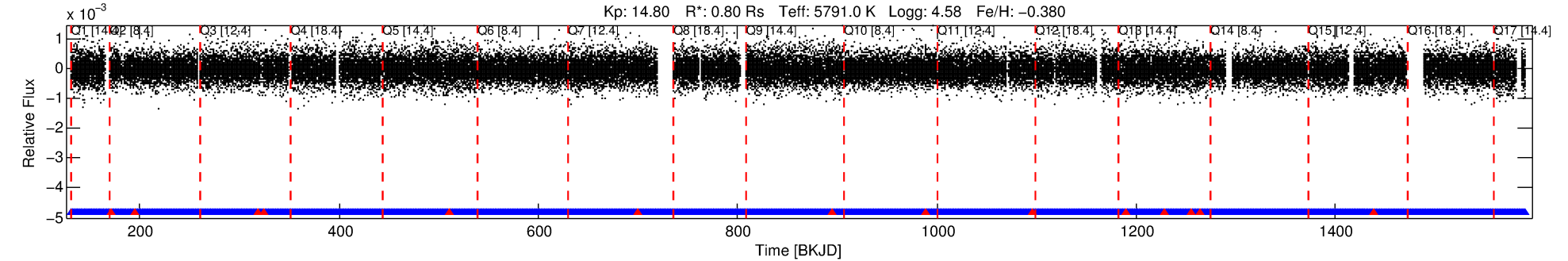
## Ephemeris Match Information For 005876368-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
005876368-01	5876368	005876360-sec	5876360	1:2	5.0	-1	1	17.17	14.79	224.46	Direct-PRF	0	1.89	0.06

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5876368 Candidate: 1 of 1 Period: 0.525 d  
KOI: K01049.01 Corr: 0.902



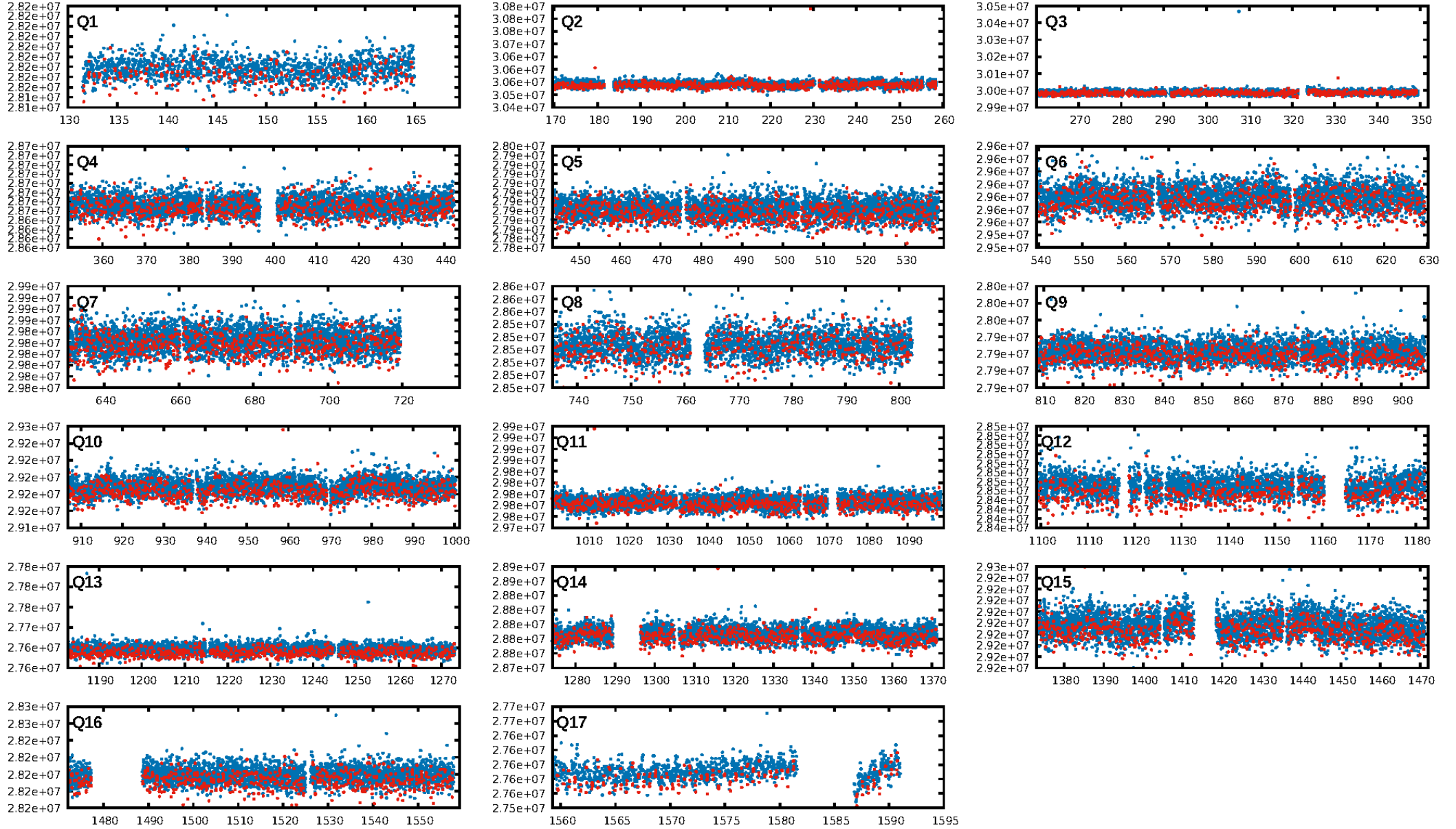
## DV Fit Results:

Period = 0.52543 [0.00000] d  
Epoch = 131.6124 [0.0004] BKJD  
Rp/R\* = 0.0167 [0.0032]  
a/R\* = 2.25 [1.74]  
b = 0.90 [0.21]  
Seff = 4338.53 [1311.35]  
Teq = 2069 [156] K  
Rp = 1.47 [0.44] Re  
a = 0.0122 [0.0023] AU  
Ag = 0.47 [0.27] [-1.97σ]  
Teffp = 2647 [344] K [1.53σ]

## DV Diagnostic Results:

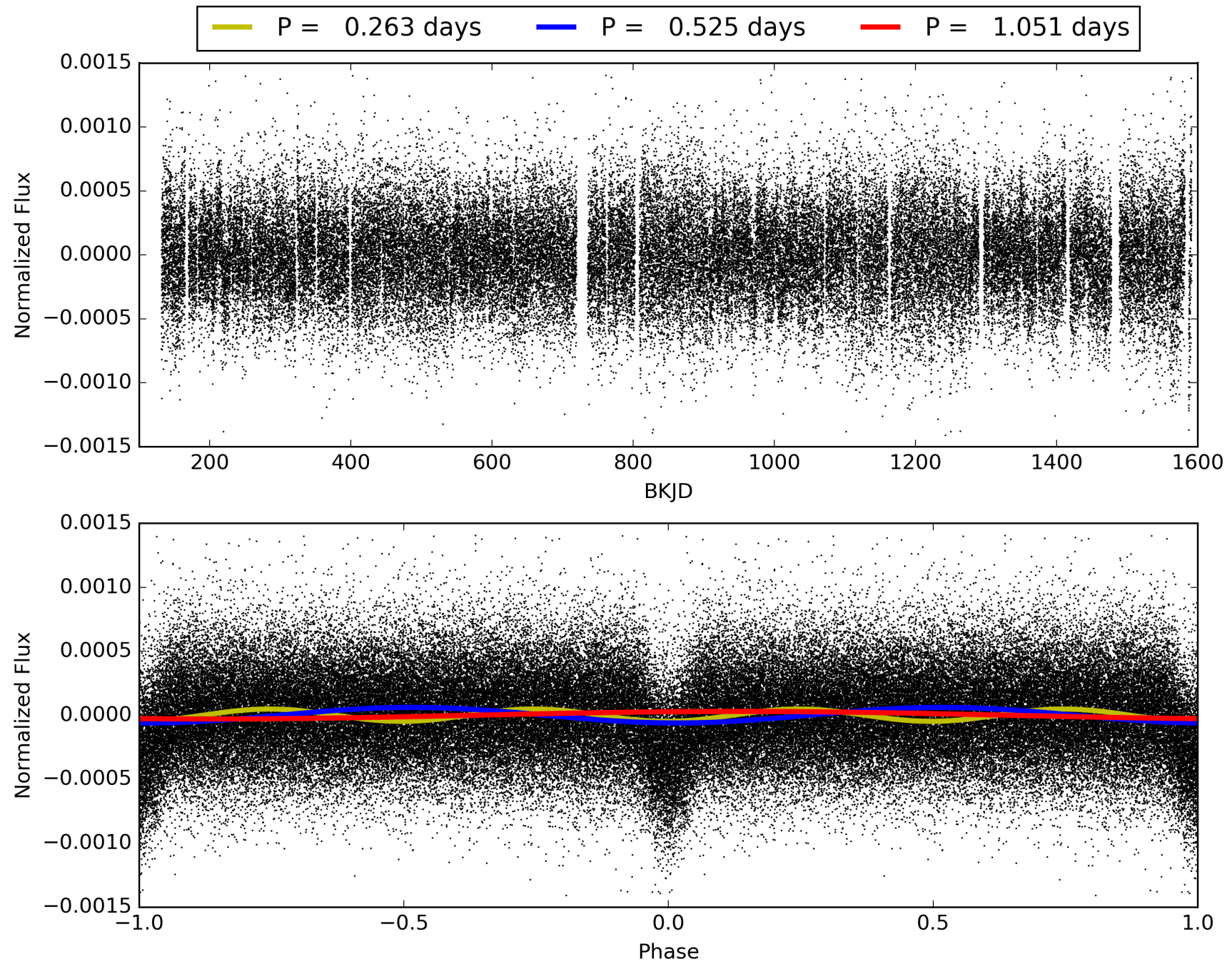
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.92e-188  
RollingBand-fgt: 0.99 [2415/2429]  
GhostDiagnostic-chr: -1.462  
Centroid-sig: 0.0%  
Centroid-so: 7.806 arcsec [21.67σ]  
OotOffset-rm: 6.871 arcsec [92.69σ]  
KicOffset-rm: 6.836 arcsec [98.55σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 005876368-01, PDC Light Curves



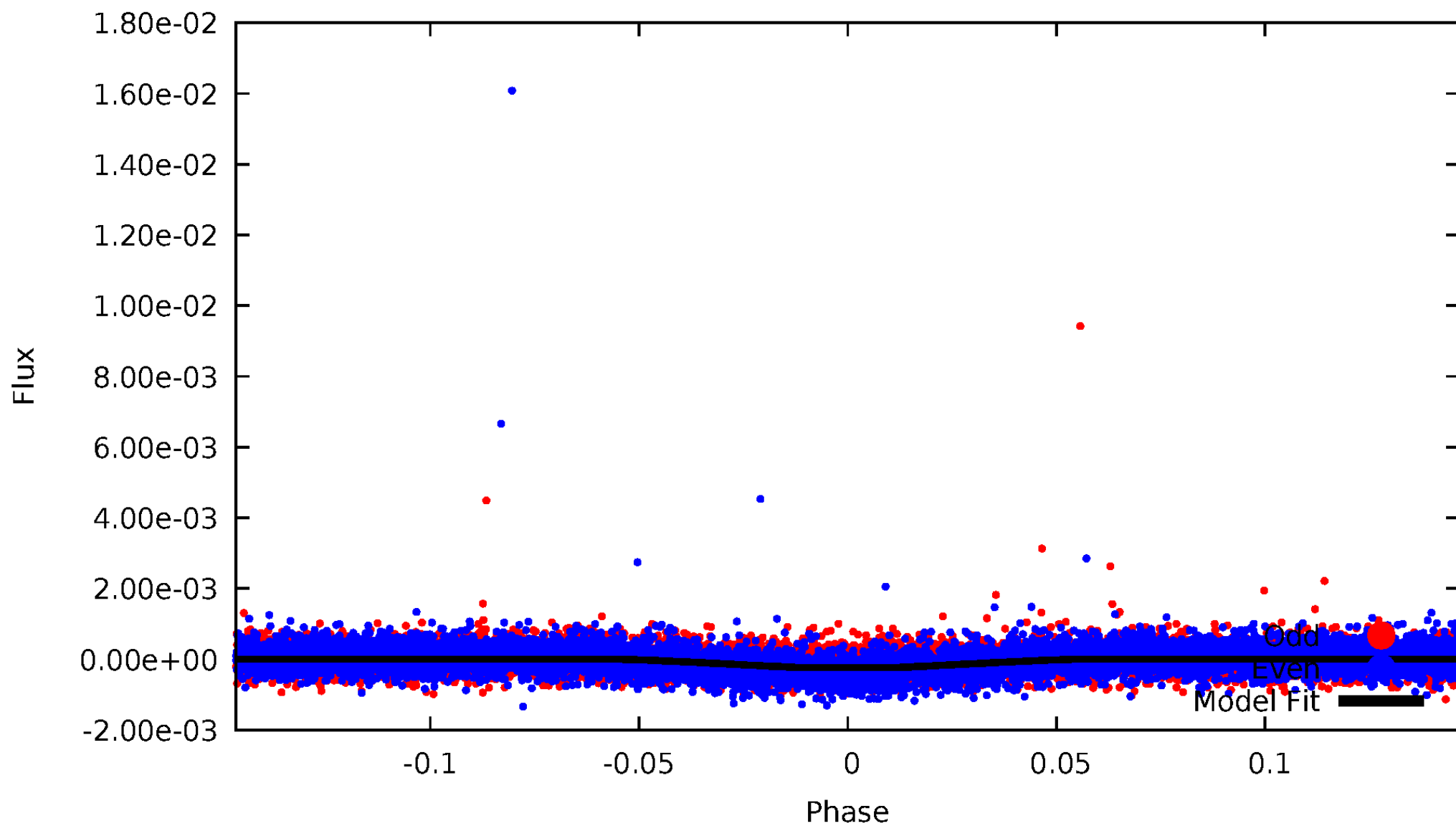


TCE 005876368-01



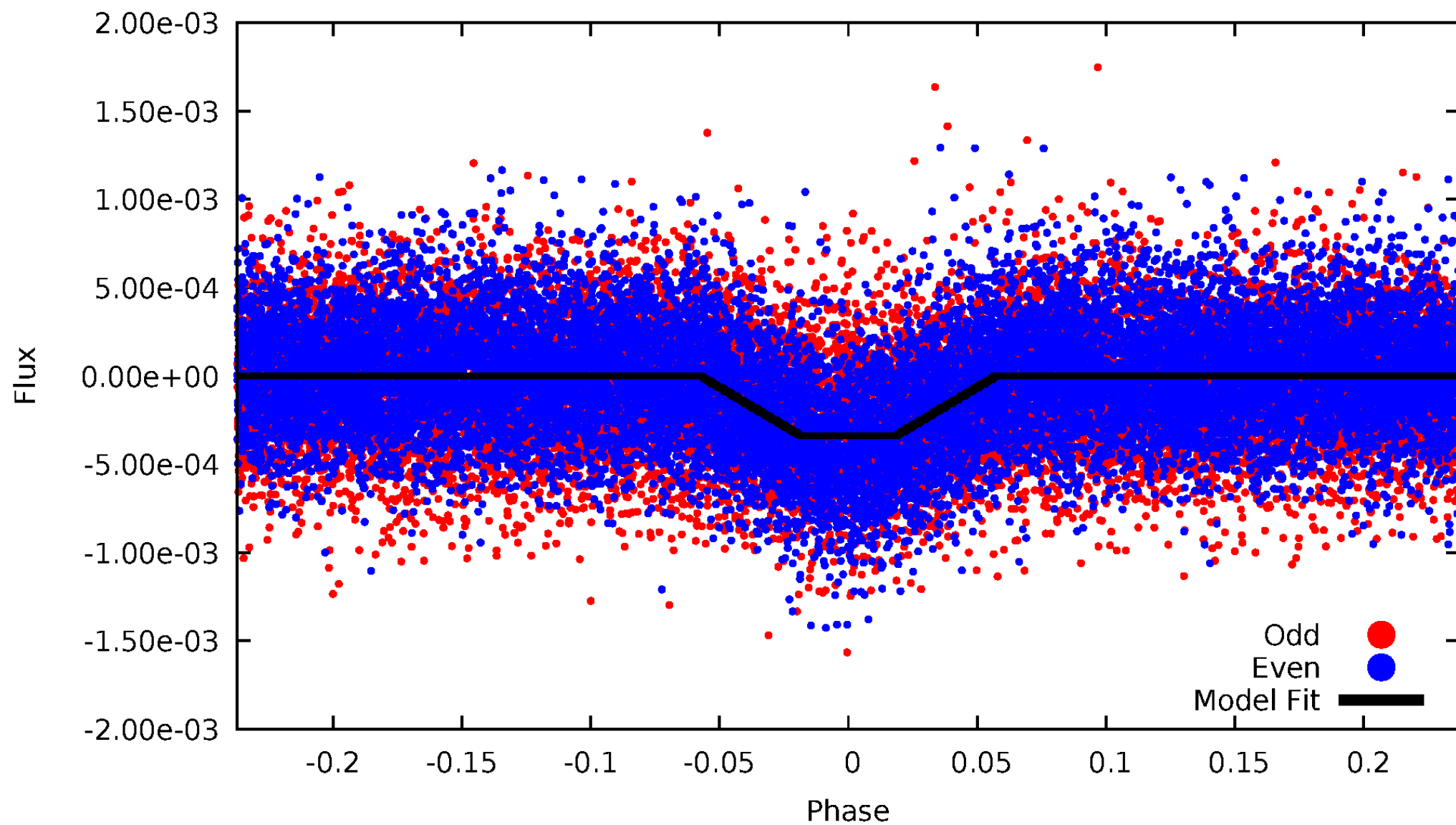
# DV Odd/Even

TCE 005876368-01



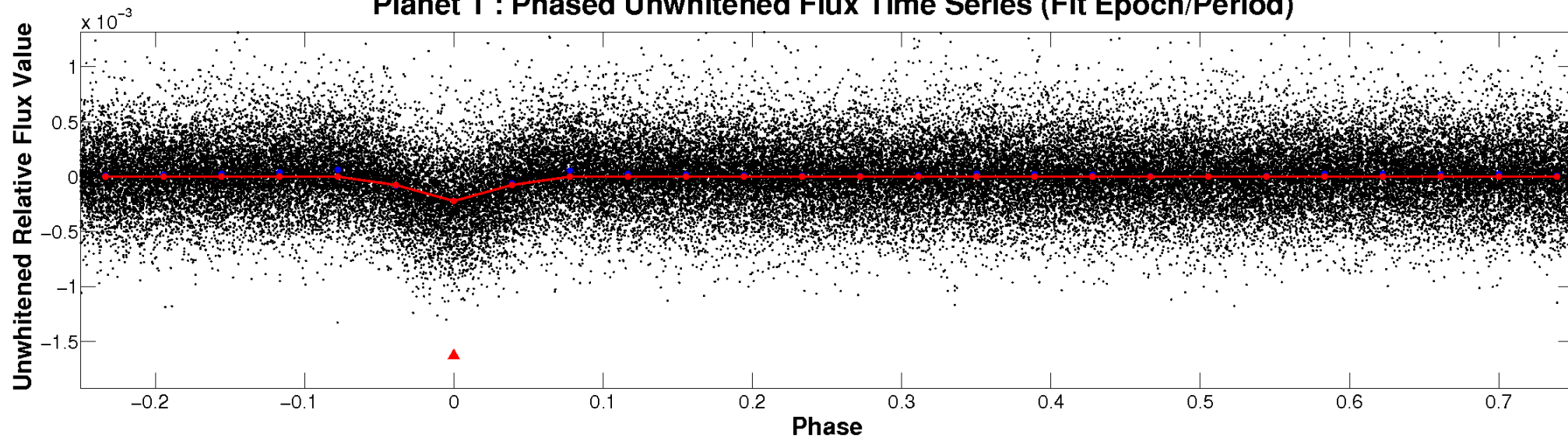
# ALT Odd/Even

TCE 005876368-01

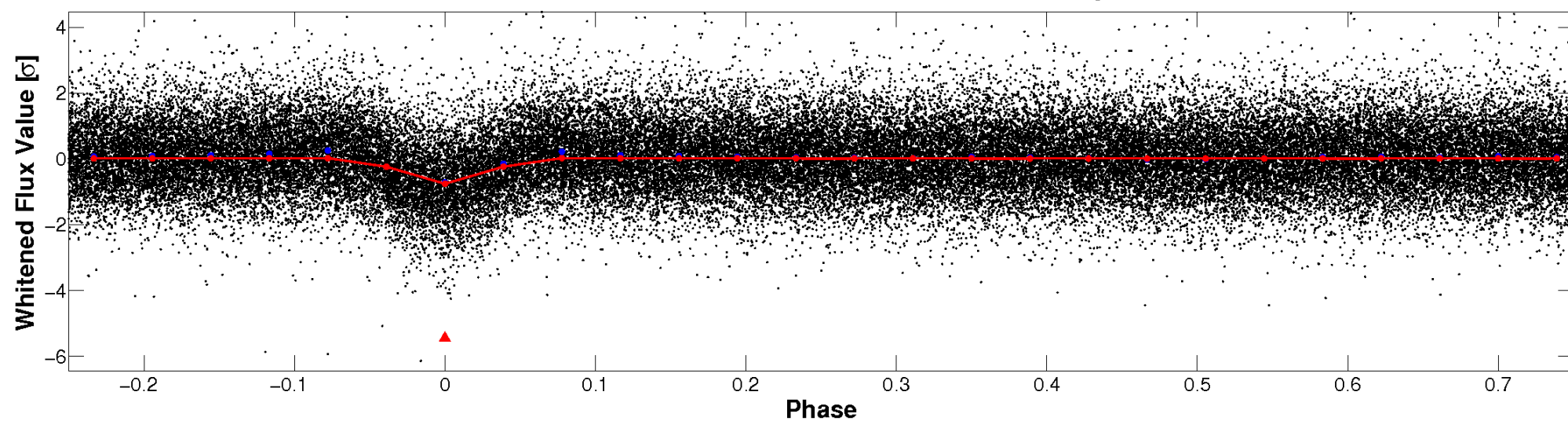


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**



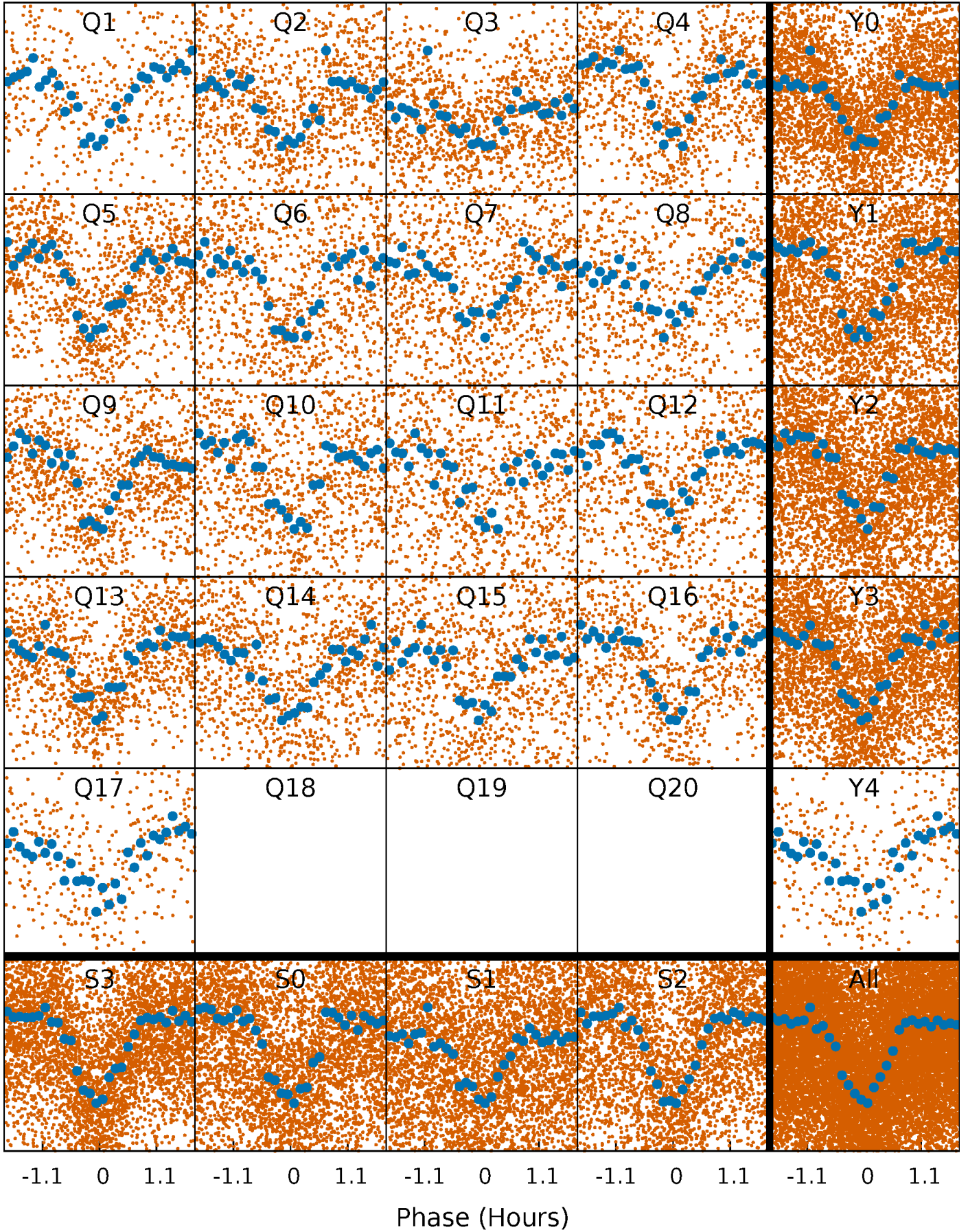
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

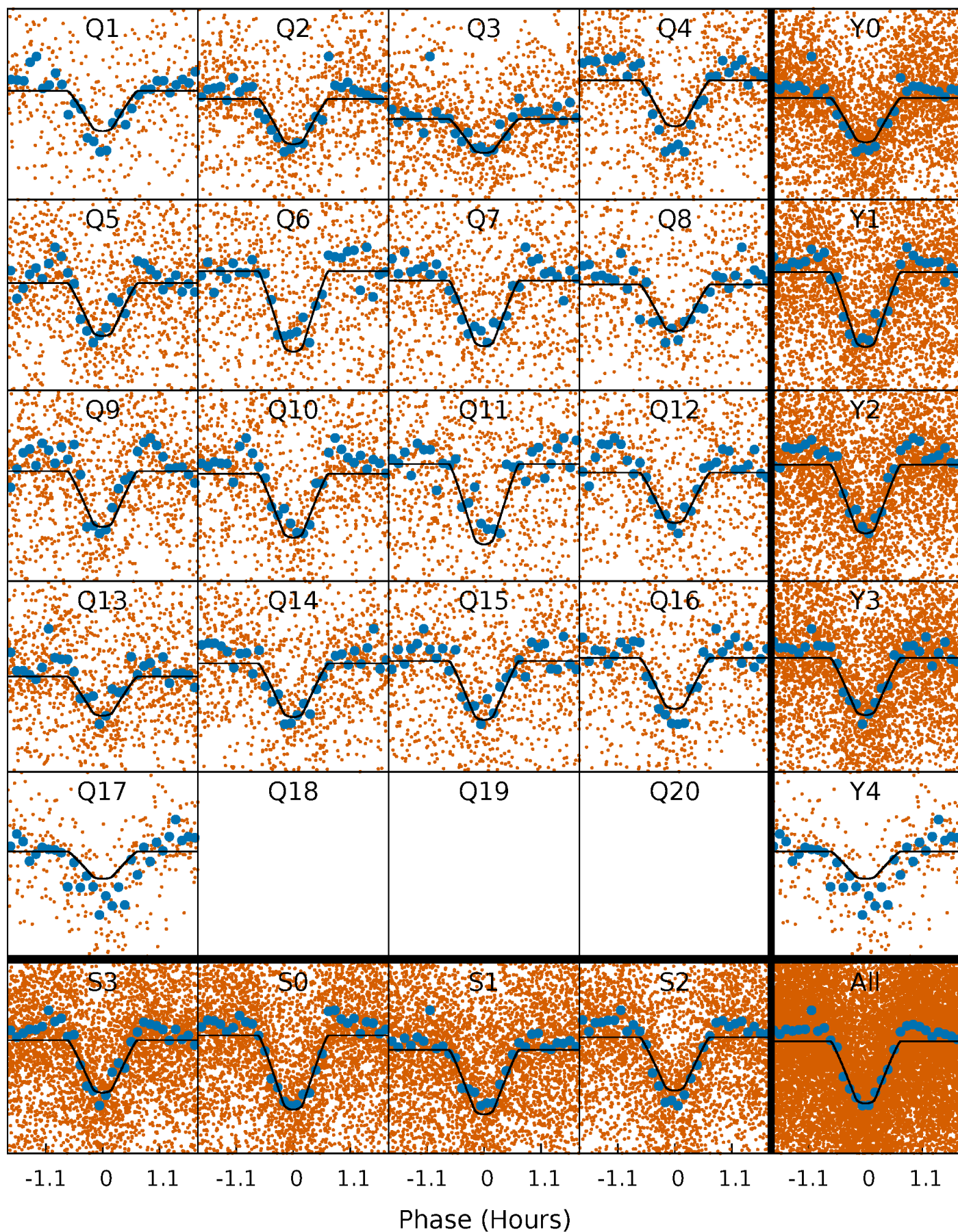
TCE 005876368-01   P= 0.525426 Days    $T_0=131.612368$  (BKJD)





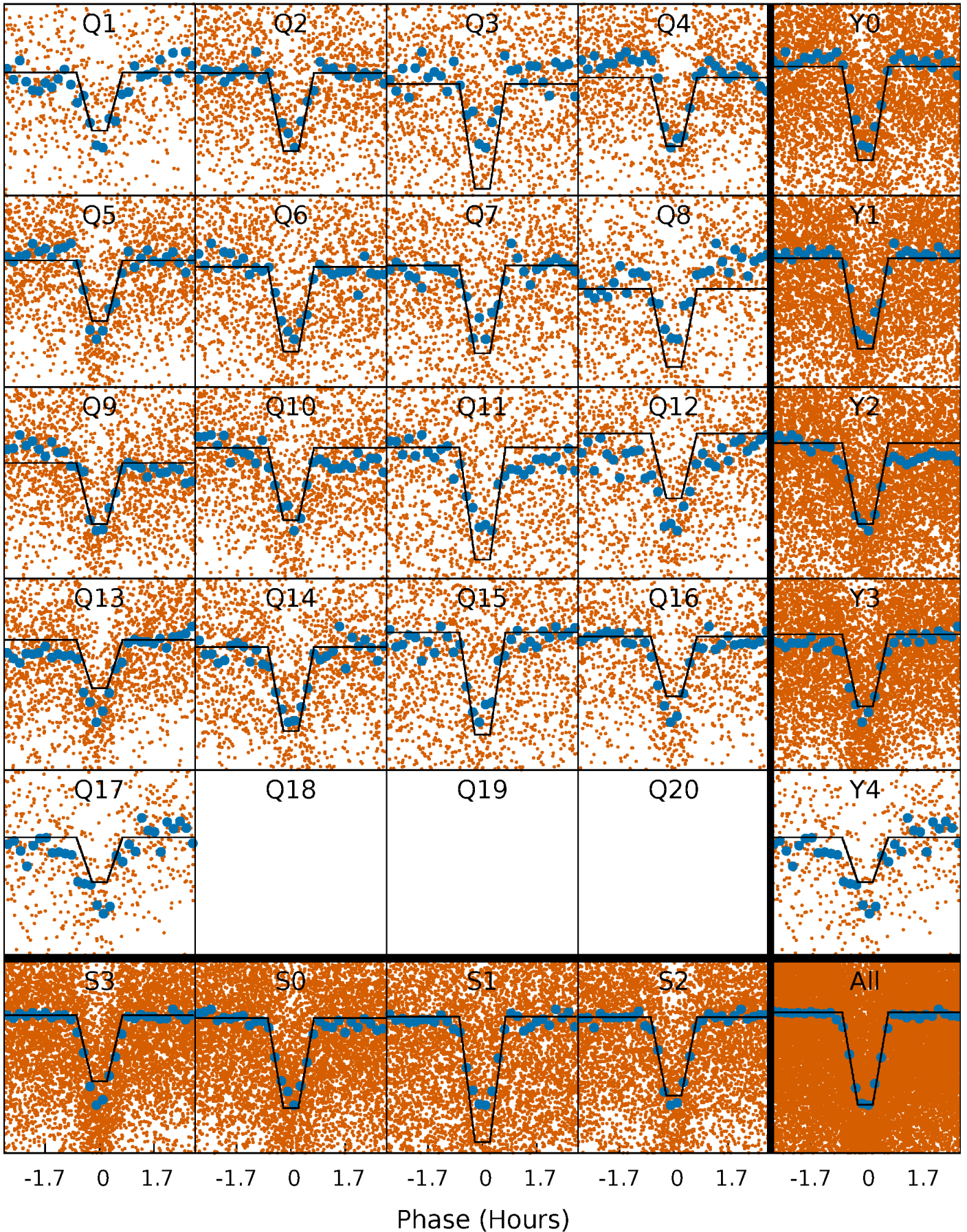
# DV Quarter-Phased Transit Curves

TCE 005876368-01 P= 0.525426 Days  $T_0=131.612368$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005876368-01 P= 0.525428 Days  $T_0=131.609239$  (BKJD)

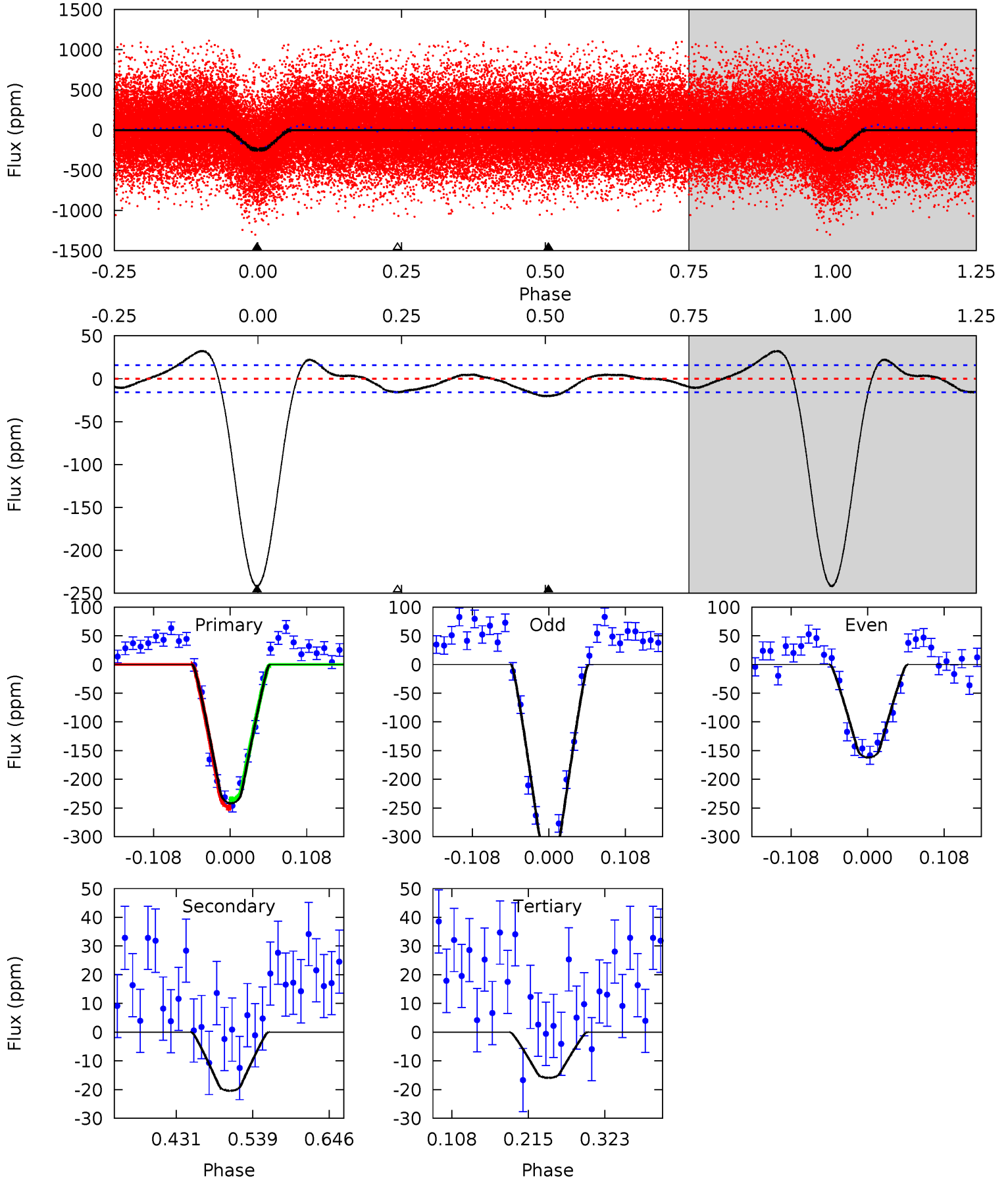




# DV Model-Shift Uniqueness Test

005876368-01, P = 0.525426 Days, E = 131.086942 Days

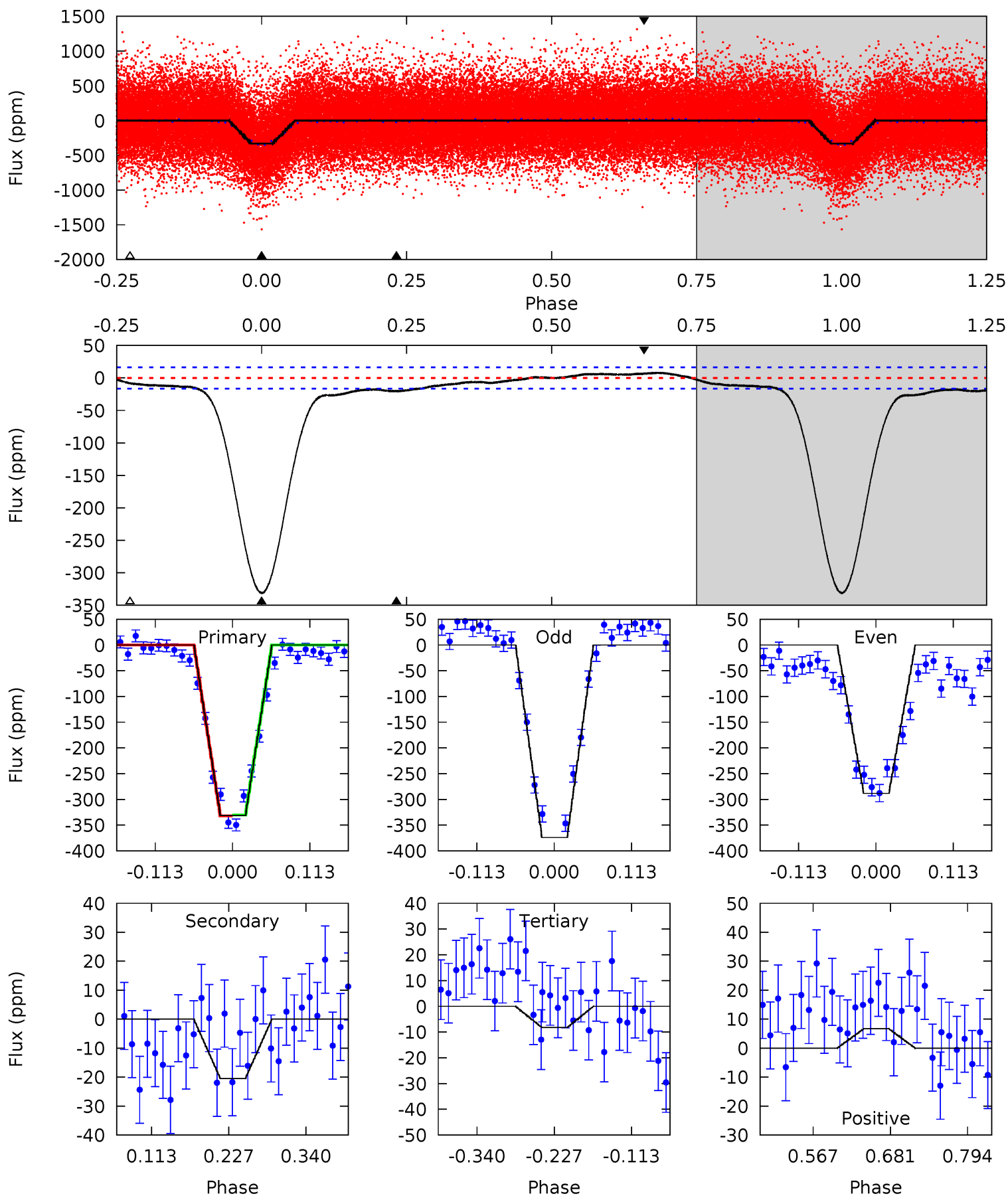
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.7	5.89	4.59	0	4.55	1.61	2.59	65.2	69.7	1.30	5.89	23.0	0.99	0.12	2.06



# Alt Model-Shift Uniqueness Test

005876368-01, P = 0.525428 Days, E = 131.083811 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
91.6	5.66	2.28	1.85	4.54	1.58	2.03	89.3	89.7	3.38	3.81	11.9	1.00	0.02	0.23





### Stellar Parameters For KIC 005876368

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5791^{+155}_{-173}$	$4.575^{+0.038}_{-0.152}$	$-0.380^{+0.300}_{-0.300}$	$0.802^{+0.181}_{-0.072}$	$0.889^{+0.087}_{-0.096}$	$2.429^{+0.474}_{-1.007}$
	+3%/-3%	+1%/-3%	+79%/-79%	+23%/-9%	+10%/-11%	+20%/-41%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005876368-01 / KOI 1049.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-20 \pm 3$	$1.51^{+0.33}_{-0.31}$	$2951^{+152}_{-129}$	$3222^{+377}_{-378}$	$0.728^{+0.436}_{-0.255}$
Alt.	$-20 \pm 4$	$1.68^{+0.34}_{-0.32}$	$2951^{+153}_{-122}$	$3026^{+382}_{-421}$	$0.578^{+0.339}_{-0.188}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

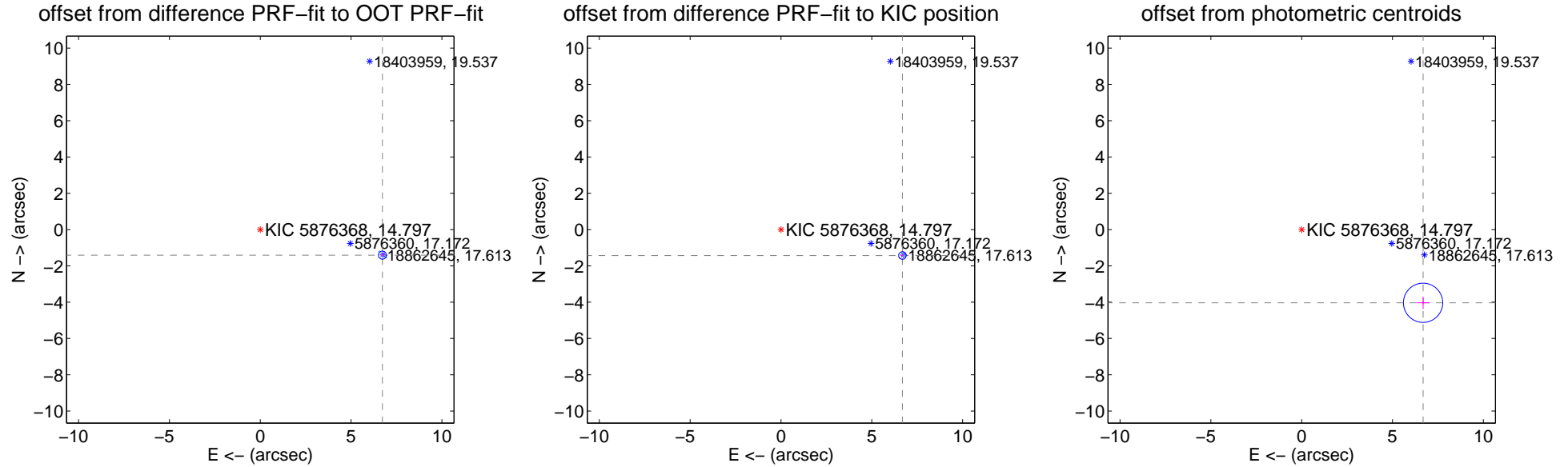
## DV Centroid Data

Supplemental centroid analysis for 005876368-01. Kepler magnitude: 14.80. Transit SNR 43.14

There are 17 quarters with good PRF difference image offsets

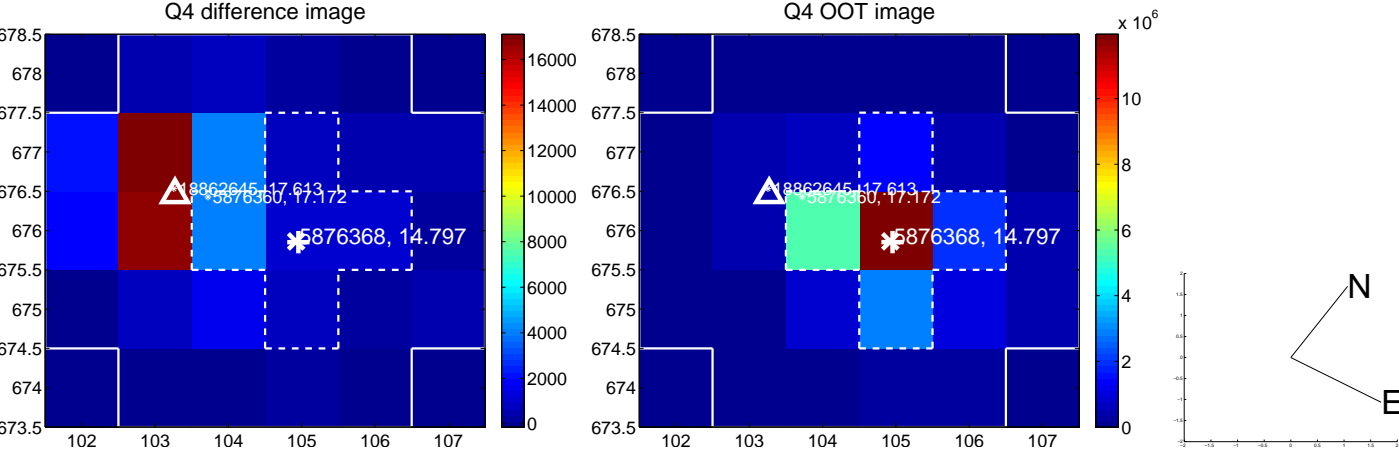
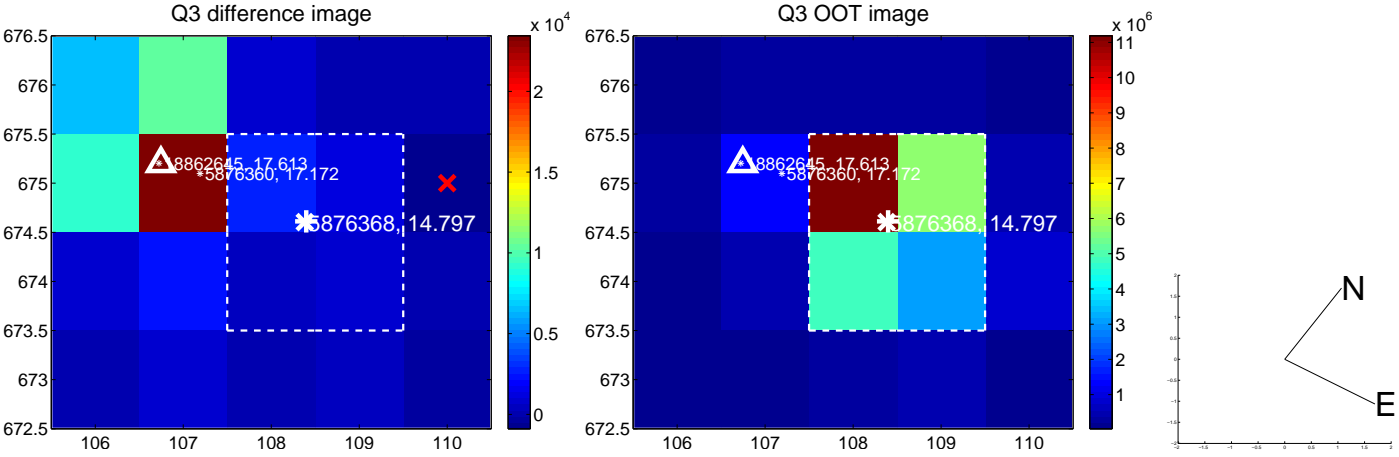
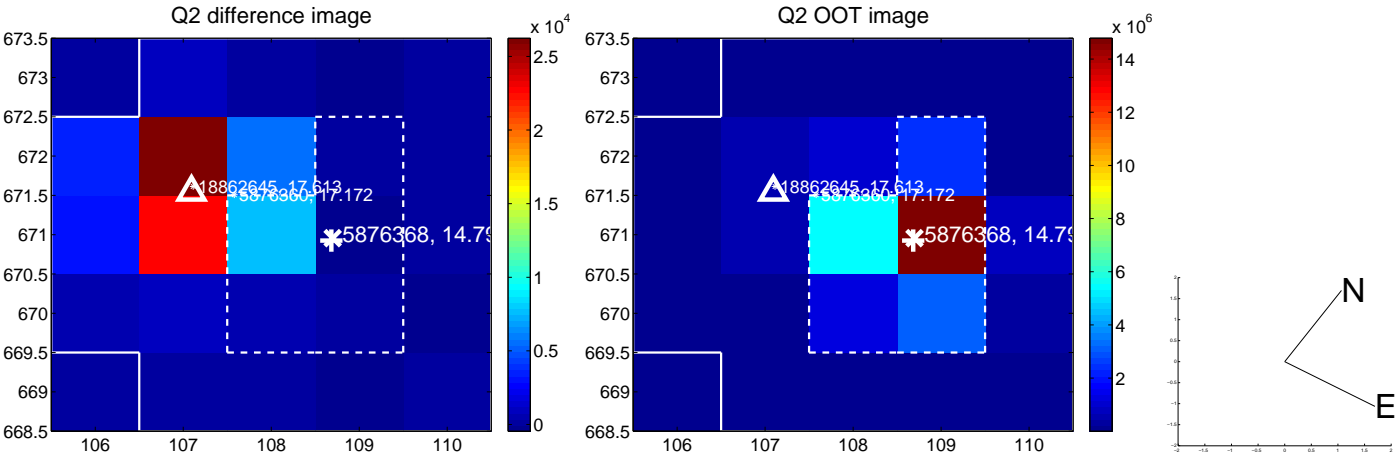
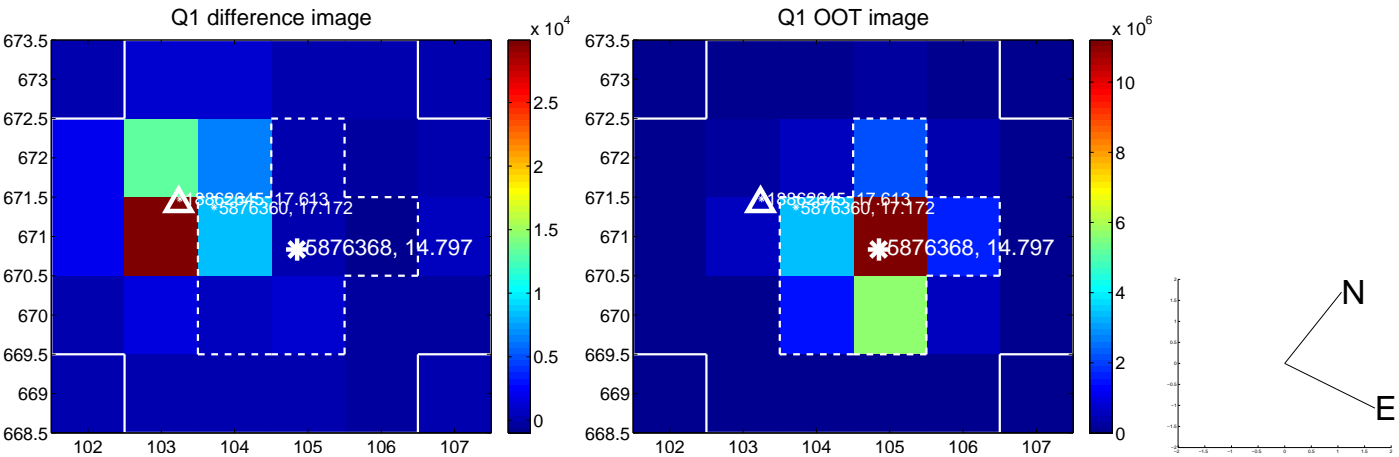
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.871 \pm 0.074$	92.69	$-6.725 \pm 0.073$	$-1.409 \pm 0.072$
PRF-fit source offset from KIC position	$6.836 \pm 0.069$	98.55	$-6.685 \pm 0.069$	$-1.429 \pm 0.067$
photometric centroid source offset	$7.81 \pm 0.36$	21.67	$-6.68 \pm 0.37$	$-4.03 \pm 0.34$

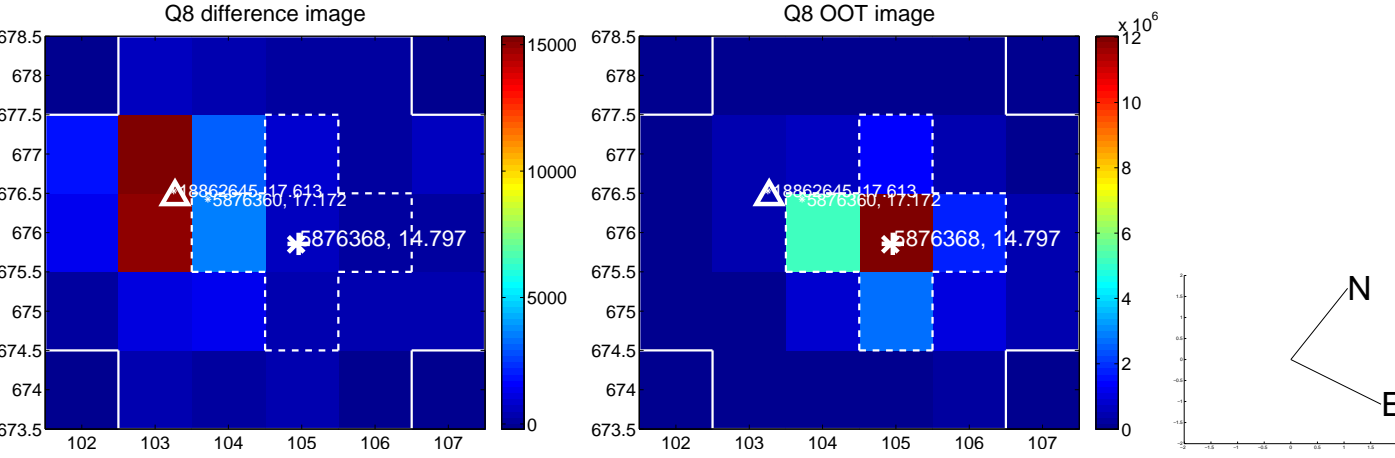
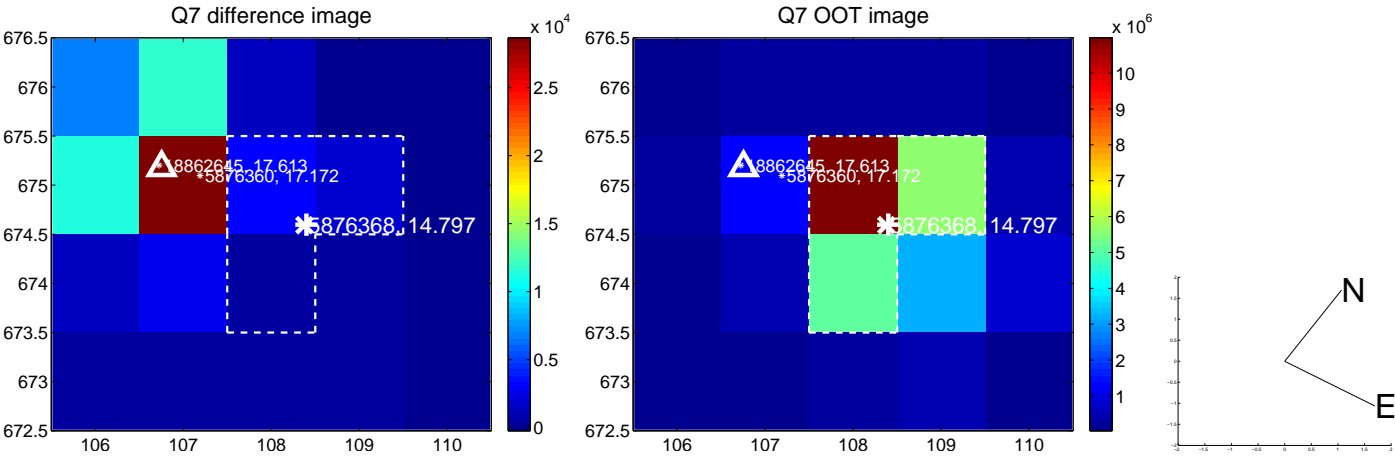
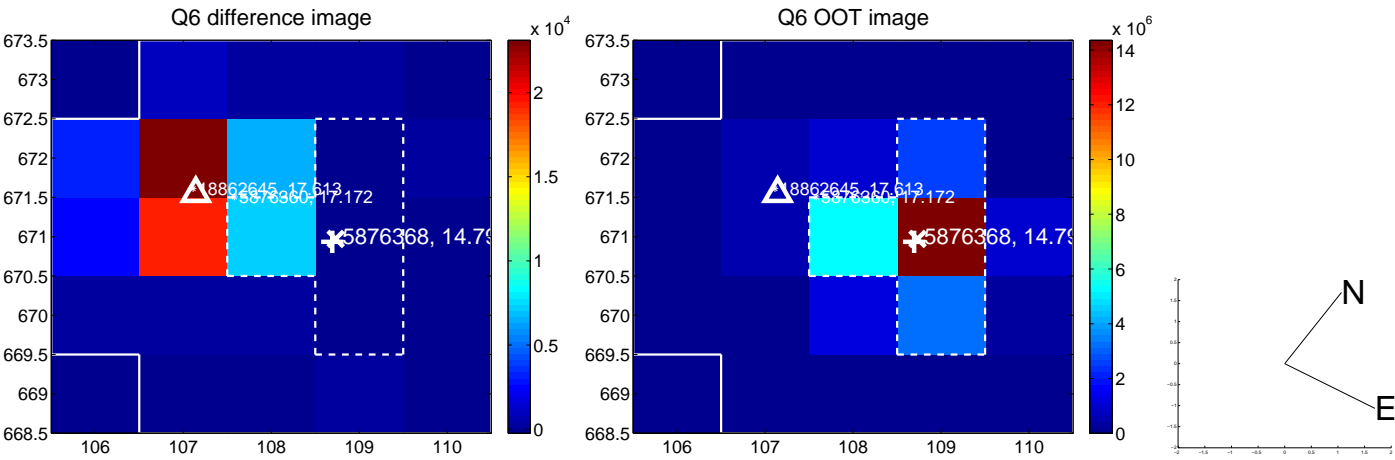
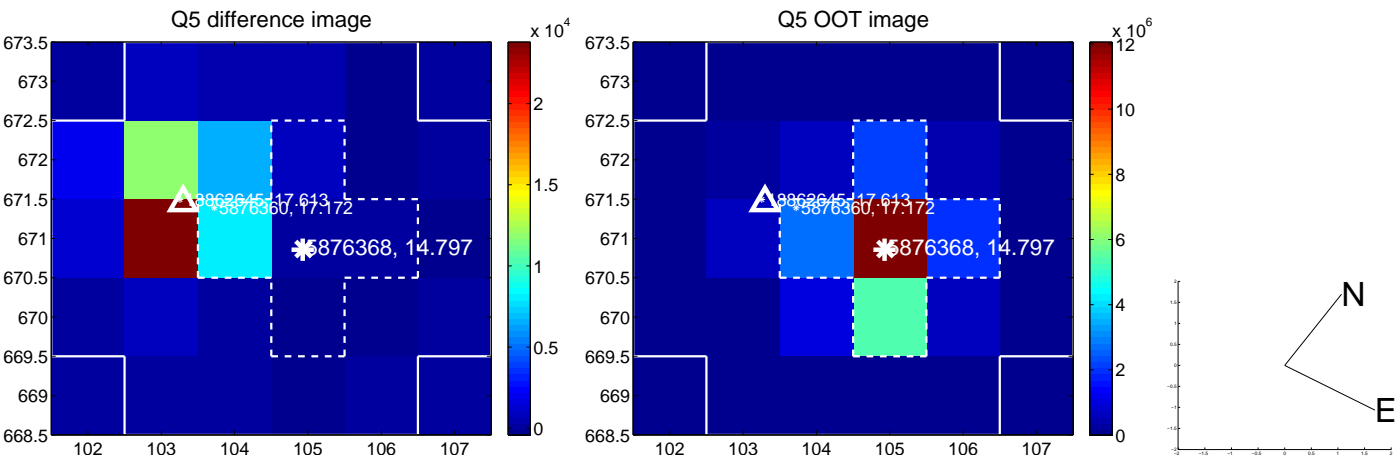


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

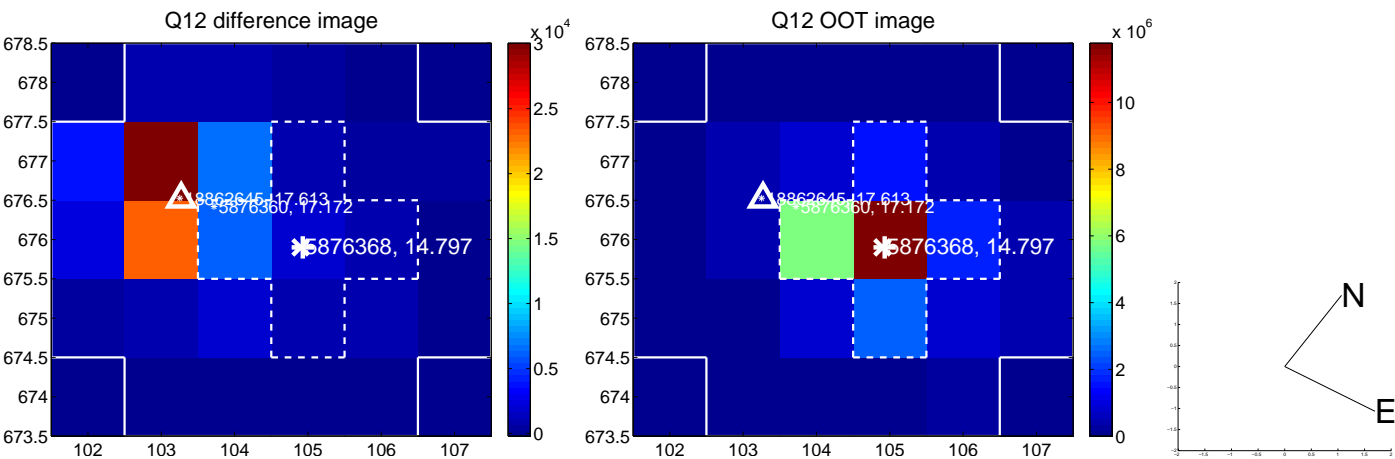
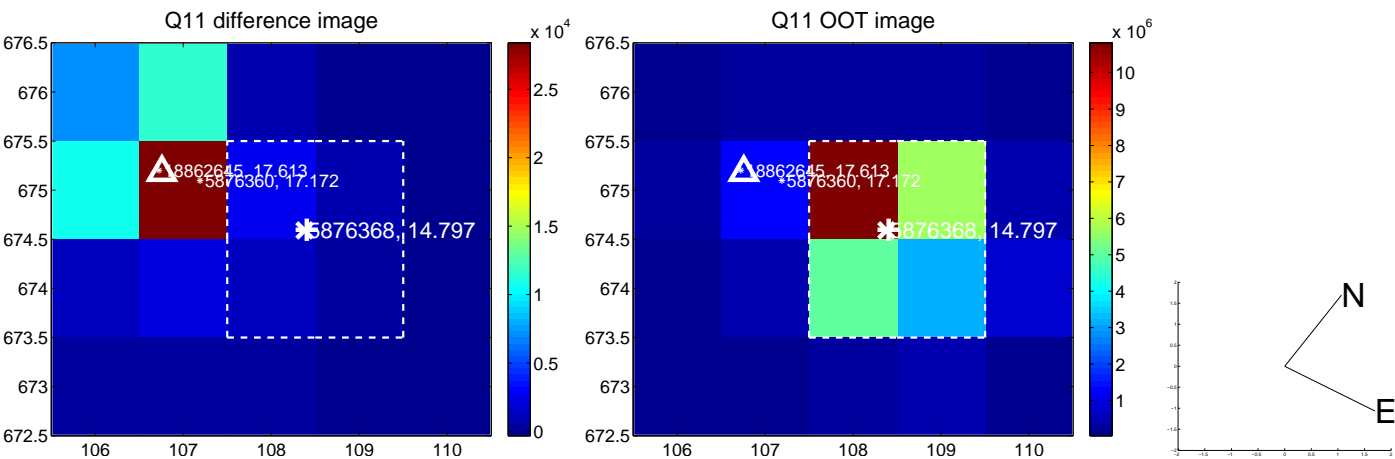
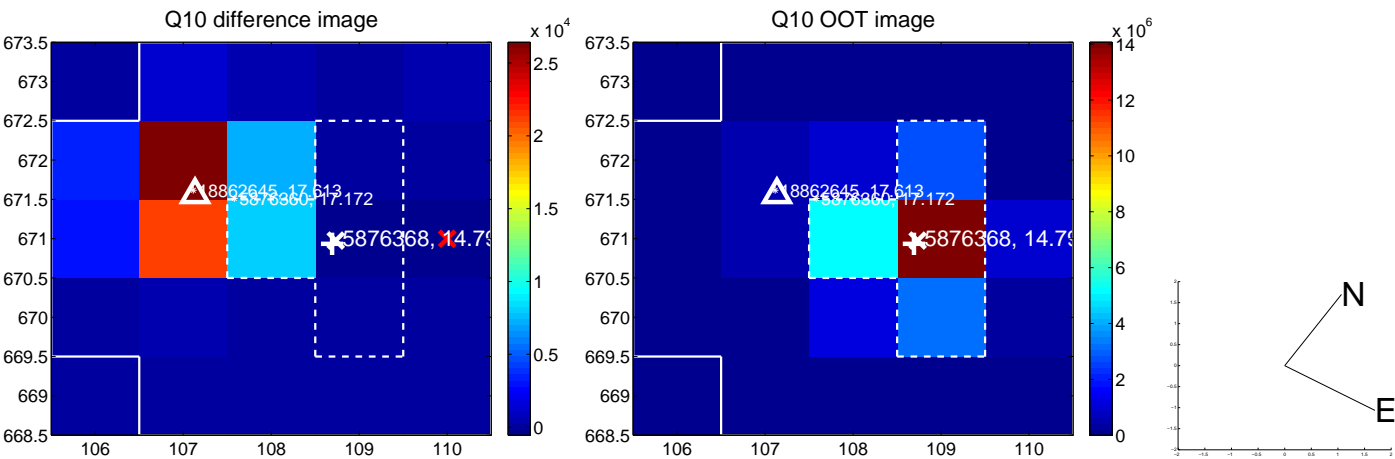
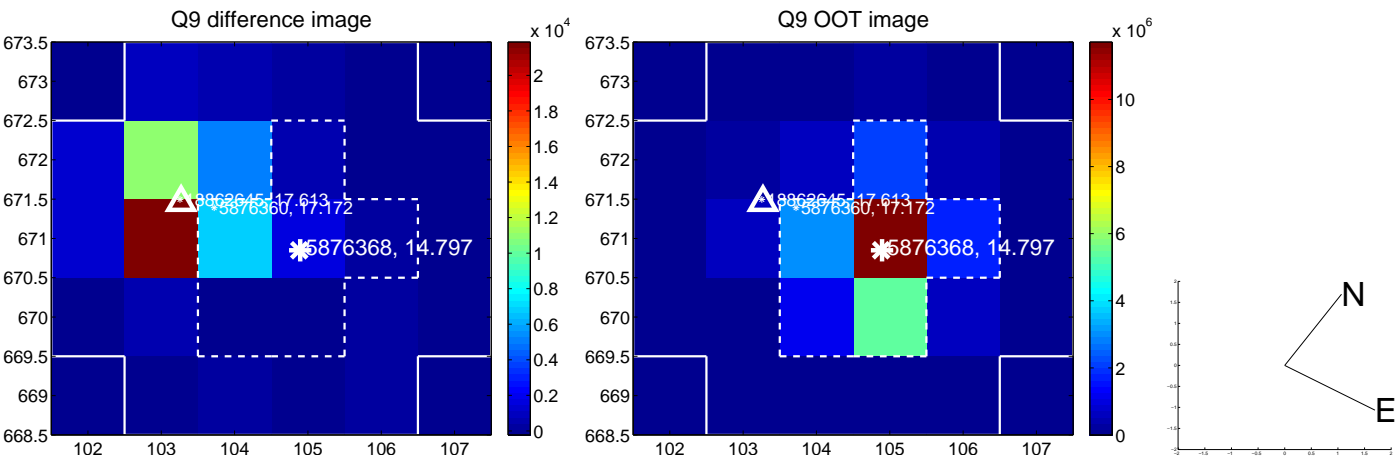


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

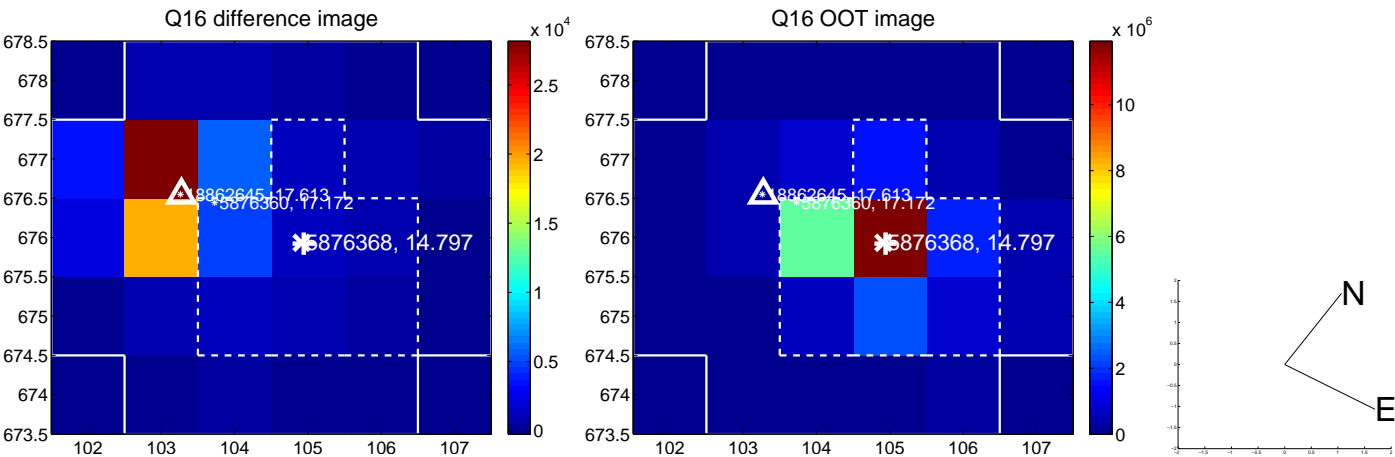
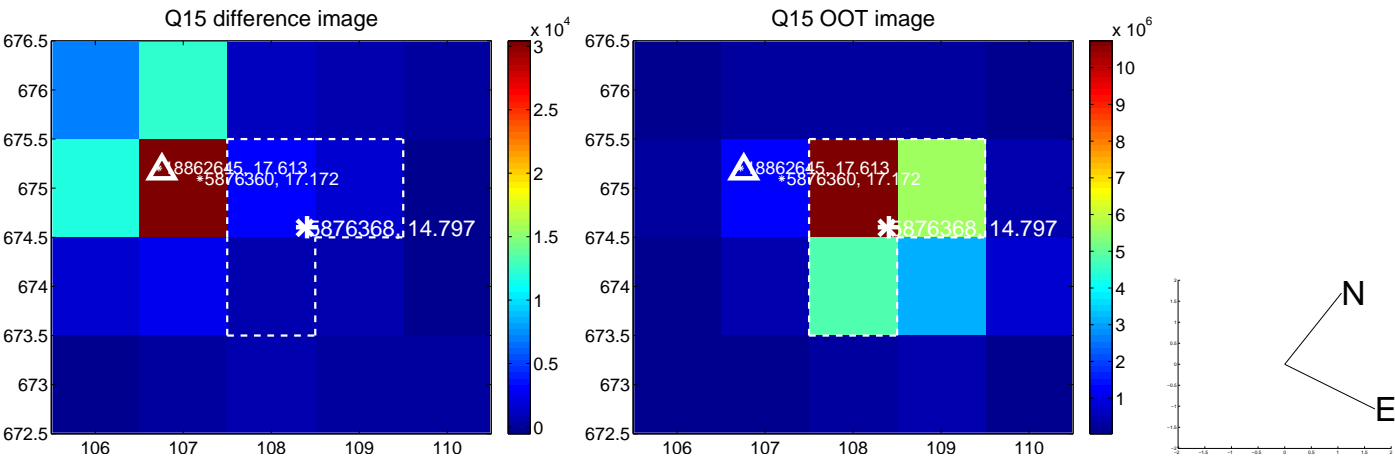
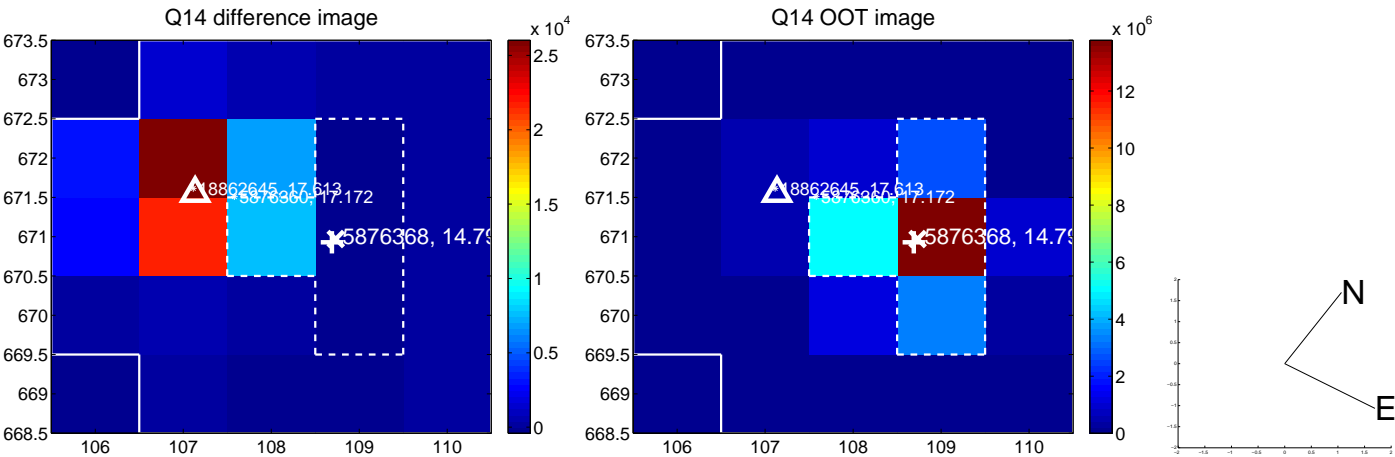
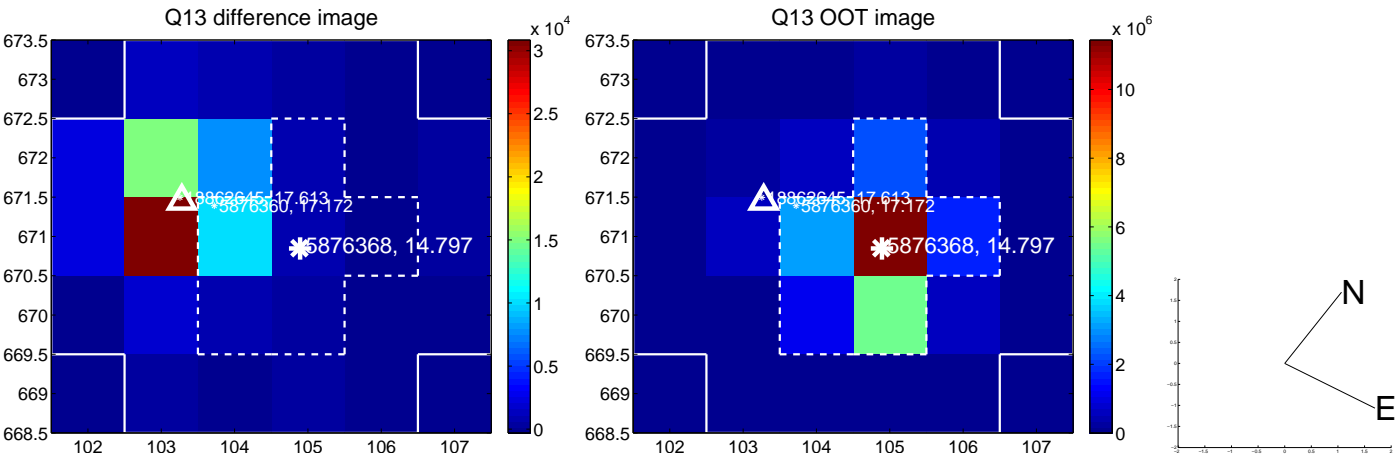




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





# UKIRT Image

Declination

